**SRFFIT005B exam preparation – Fitness Focus section**

**APPLY BASIC EXERCISE SCIENCE TO EXERCISE INSTRUCTION**

**1 Use anatomical terminology and descriptions of the musculoskeletal structure of the body when instructing clients**

1. Apply the ***components of fitness*** and the function of the body systems to common fitness activities
2. Use ***anatomical terminology*** and describe and demonstrate movements of the body to clients
3. Relate the location and function of the ***major bones*** of the upper and lower extremities and axial skeleton to movement when instructing clients
4. Relate the structure and function of the ***major joints*** of the body to exercise to movement when instructing clients
5. Relate the gross structure of skeletal muscle and its relationship to movement to movements when instructing clients
6. Relate ***major muscles*** and their prime moving movements at major ***joints*** in the body to movement when instructing clients.
7. Relate the neural control of skeletal muscle contraction to movement when instructing clients
8. Relate basic types of ***neural feedback*** involved in the coordination of movement to movement when instructing clients
9. Measure and relate the relationship between muscle size and strength to movement when instructing clients
10. Explain the basic structural adaptations to musculoskeletal tissue that occur as a result of fitness training to clients

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| Previous exam |
| Notes (A. how did we achieve this element? B. key words and brief summary – refer to the range statements. C. Refer to your workbook for revising this element) |

**2 Relate the functioning of the cardio–respiratory system to exercise instruction**

* 1. Identify and explain the structure and function of the various parts of the ***cardio–respiratory system***, related to exercise to clients
  2. Relate the process of transport and exchange of oxygen and carbon dioxide during exercise to fitness outcomes when instructing clients
  3. Measure client heart rates and blood pressure responses during ***submaximal aerobic activity*** and used to set training loads to target specific client energy system involvement
  4. Use ratings of perceived exertion during ***submaximal aerobic activity***, muscle endurance activities, lactate endurance and maximal strength activities to measure and adjust the work intensity of clients
  5. Compare the oxygen demands for various fitness activities
  6. Explain the physiological adaptations of the cardio–respiratory system as a result of fitness training to clients
  7. Recognise and use symptoms and effects of specific muscular fatigue and blood lactate accumulation during muscle endurance activities to adjust exercise intensity

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| Previous exam |
| Notes (A. how did we achieve this element? B. key words and brief summary – refer to the range statements. C. Refer to your workbook for revising this element) |

**3 Apply a knowledge of the body’s energy systems to exercise instruction**

* 1. Explain the effect of exercise intensity on the energy substrate to clients during fitness instruction
  2. Apply the limiting factors of the ***body’s energy systems*** to the setting of exercise intensities when instructing fitness activities

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| Previous exam |
| Notes (A. how did we achieve this element? B. key words and brief summary – refer to the range statements. C. Refer to your workbook for revising this element) |

**4 Use a knowledge of the lever systems of the human body and resistance equipment to set safe and effective exercise intensities**

* + 1. Use the common terms used to qualify the basic ***principles of biomechanics*** when instructing fitness activities
    2. Identify and explain the basic ***lever systems*** in both anatomical and mechanical lever systems to clients
    3. Use the ***lever systems*** in the human body and their role in movement and stability to provide safe and effective exercises for clients

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| Previous exam |
| Notes (A. how did we achieve this element? B. key words and brief summary – refer to the range statements. C. Refer to your workbook for revising this element) |

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**RANGE STATEMENT** **CATEGORIES**

**Anatomical terminology**

* flexion
* extension
* rotation
* abduction
* adduction
* circumduction
* inversion
* eversion
* pronation
* supination
* horizontal flexion
* horizontal extension

**Cardio–respiratory system**

Heart, lungs, arteries, capillaries, veins

**Components of fitness**

* cardio–respiratory endurance
* muscular endurance
* strength
* flexibility
* body composition
* speed
* power
* agility
* balance
* coordination
* anaerobic endurance

**Energy systems**

* alactic
  + adenosine triphosphate
  + phosphocreatine
* lactic
* aerobic
  + aerobic glycolysis
  + fat oxidation

**Industry standards**

* professional associations
* government legislation

**Joints**

* joint functions
  + weight bearing
  + movement
* joint types
  + ball and socket
  + hinge
  + vertebral
* synovial joints
  + ligaments
  + articular cartilage
  + capsule
  + synovial membrane
  + synovial fluid
  + bone

**Lever systems**

* 1st class
  + force arm
  + resistance arm
  + axis of rotation
* 2nd class
  + force arm
  + resistance arm
  + axis of rotation
* 3rd class
  + force arm
  + resistance arm
  + axis of rotation

**Major bones**

* skull
* cervical vertebrae
* thoracic vertebrae
* lumbar vertebrae
* sacrum
* clavicle
* scapula
* humerus
* radius
* ulna
* carpals
* digits
* pelvis
* femur
* patella
* tibia
* fibula
* tarsals

**Major muscles**

* trapezius
* sternocleidomastoid
* latissimus dorsi
* erector spinae
* rectus abdominis
* internal obliques
* external obliques
* quadratus lumborum
* pectoralis major
* rhomboids
* deltoids
* biceps brachii
* triceps brachii
* forearm flexors
* forearm extensors
* gluteals
* quadriceps
  + vastus medialis
  + vastus lateralis
  + vastus intermedius
  + rectus femoris
* hamstrings
  + semimembranous
  + semitendinous
  + bicep femoris
* gastrocnemius
* soleus
* tibialis anterior

**Major joints**

* elbow
* shoulder
* pectoral girdle
* inter–vertebral
* sacro–iliac
* hip
* knee
* ankle

**Neural feedback**

* proprioception
* reflex loops

**Principles of biomechanics**

* mass
* force
* speed
* acceleration
* work
* energy
* power
* strength
* momentum
* force arm
* resistance arm
* axis of rotation
* cam
* pulley

**Resistance**

* pin loaded
* hydraulic
* air
* water
* free weights
* electronic/magnetic
* resisted/assisted

**Stages of change**

* pre–contemplation
* contemplation
* preparation
* action
* maintenance

**Stages of fitness**

* beginner
* relatively fit
* advanced fitness level

specific to the individual and the activity

**Submaximal aerobic activity**

* intensity
* duration